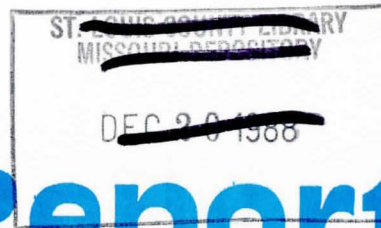


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1987 Annual Report

Missouri Highway and Transportation Department

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Letter of Transmittal

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1102 Grand Avenue
Kansas City 64106

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3016 Bluffwood Drive
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DON WALSWORTH, *Member*
306 North Kansas Avenue
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HARRY T. MORLEY, *Member*
1227 Fern Ridge Parkway
St. Louis 63141

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION



WAYNE MURI
Chief Engineer

RICH TIEMEYER
Chief Counsel

WALTER F. VANDELICHT
Ass't. Chief Engineer

MARI ANN WINTERS
Secretary

P.O. Box 270
Jefferson City, Missouri 65102
Telephone (314) 751-2551

Honorable John D. Ashcroft
Governor of Missouri
State Capitol
Jefferson City, Mo. 65101

Dear Governor Ashcroft:

The Missouri State Highway and Transportation Department is pleased to submit this 1987 annual report for your review.

The report consists of a summary of major activities during the past year, information about the receipts and expenditures of the department, and an explanation of the responsibilities and activities of each division within the department.

We hope the report will serve as a reference in answering questions you may have or in providing information you may need about annual operations.

Sincerely yours,

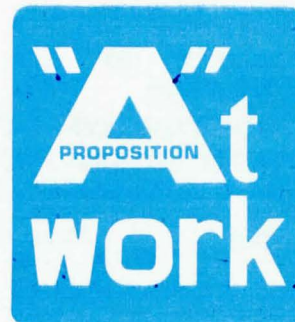
Wayne Muri

Wayne Muri
Chief Engineer

Progress as Promised

The passage of Proposition A overshadowed all other Department activities in 1987 because of the far-reaching effects it produced in activities and programming.

Proposition A was a road and bridge improvement program to be funded by a four cent per gallon increase in the motor fuel tax. It also included a ten percent increase in fees for heavy trucks and a spending cap on highway fund appropriations to outside agencies. The entire proposal hinged on approval by Missouri voters and passed by a 56 to 44 percent margin in a statewide vote held April 7.



The Department at the time clearly stated what projects would be given priority and put everything into a 15-year time-frame. Progress as promised began immediately and highway construction projects showed a dramatic increase in the remaining months of 1987.

HIGHWAY PROJECTS

April, 1987 - December, 1987	\$306,900,000
April, 1986 - December, 1986	\$142,400,000

	April-Dec. 1986		April-Dec. 1987	
	Miles	Cost	Miles	Cost
Resurfacing	273.2	\$35,000,000	1,599.8	\$83,700,000
Improve to Four-Lane	---	---	52.1	\$68,400,000
Bridges	20.8 (47 bridges)	\$49,900,000	13.8 (42 bridges)	\$37,800,000
Other Improvements	28.3	\$57,500,000	157.3	\$117,000,000

Statement of Receipts and Disbursements

Financial Summary for Calendar Year 1987

	RECEIPTS	DISBURSEMENTS
HIGHWAY FUNCTIONS		
Basic Revenue:		
Motor Vehicle License	\$ 167,146,896.41	--
Motor Bus & Truck Fees	4,480,452.46	--
Motor Vehicle Use Tax	28,422,005.89	--
Drivers License Fees	10,305,403.95	--
Motor Vehicle Inspection Fees	2,198,521.75	--
Motor Fuel Tax Receipts	215,910,301.36	--
Vehicle Sales Tax Receipts	54,275,441.19	--
Sub-Total	\$ 482,739,023.01	--
OTHER REVENUE:		
Misc. Escrow Fees	\$ 136,498.68	--
Reciprocity Fund Interest	45,521.20	--
Road Fund Interest	2,073,963.51	--
Other Miscellaneous	13,234,863.53	--
Sub-Total	\$ 15,490,846.92	
Federal Reimbursement:		
FHWA	\$ 262,619,651.72	--
Corps of Engineers	899,765.05	--
Sub-Total	\$ 263,519,416.77	
Construction	--	\$ 359,180,124.91
Maintenance	--	191,613,634.56
Administration	--	48,957,992.66
Refund of Motor & Aviation Fuel Tax	--	10,213,873.01
O.A.S.I.	--	9,860,024.98
TOTAL FOR HIGHWAY FUNCTION	\$ 761,749,286.70	\$ 619,825,650.12

Financial Summary

	RECEIPTS	DISBURSEMENTS
TRANSPORTATION FUNCTION:		
Administration	--	\$ 905,749.80
Transit	--	6,783,516.67
Rail	--	2,043,540.37
Aviation	--	454,783.00
Water	--	341,547.84
General Revenue Fund	\$ 3,414,667.00	--
Federal Fund	6,709,074.32	--
Transportation Trust Fund	548,236.71	--
Aviation Trust Fund	<u>126,603.00</u>	
 TOTAL FOR TRANSPORTATION FUNCTION	 \$ 10,798,581.03	 \$ 10,529,137.68
 MISSISSIPPI RIVER PARKWAY COMM. -	 \$ 11,669.03	 \$ 11,669.03
THIRD STATE BUILDING TRUST FUND -	4,775,142.84	4,775,142.84
THIRD STATE BUILDING FUND -	76,150.68	76,150.68
OTHER STATE DEPTS. (FROM HWY. FUNDS) -	--	115,762,381.29
 GRAND TOTALS	 \$ 777,410,830.28	 \$ 750,980,131.64

Accounting

The accounting and expenditure control for the Highway and Transportation Department is the direct responsibility of the Accounting Division. All of the department's records of financial transactions are processed and recorded by this division.

Based on anticipated revenues and disbursements, the division prepares legislative budget requests as well as annual internal budgets.

The division reviews all payment documents for accuracy, priority of payment, and to determine if funds are available prior to recording and certification for payment.

The division processed 214,349 checks during 1987. Disbursements from highway funds for highway and transportation functions equaled \$619,825,650.12. Disbursements by other state departments from highway funds equaled \$115,762,381.29. Total disbursements from all funds equaled \$750,980,131.64.

Effective January 1, 1987, the department became self-insured for workers' compensation and automobile liability. A Risk Management Section was created to manage this program. The claims are processed by a contracted administrator. There were 937 workers' compensation cases and 784 automobile liability cases processed this year.

The Risk Management Section also has the responsibility for administering the regulations and policies of the Highway Employees' and Highway Patrol Medical and Life Insurance Plan, which includes the Optional Life Insurance Plan. As of December 31, 1987, there were 9,963 health insurance plans, 7,814 state furnished life insurance plans and 7,559 optional life insurance plans in force.

For the period from January 1, 1987, through December 31, 1987, there were 61,733 health claim payments with \$14,156,545 paid in benefits. During the same period, there were 22 life claims under the state furnished plan and 31 life claims under the optional life plan with \$331,466 and \$959,423 paid respectively in benefits to survivors.

During the calendar year of 1987, the property damage recovery unit was relocated in the Risk Management Section. A total of \$691,652.52 was collected this year involving 2,167 claims.

Bridge

The Bridge Division is responsible for the design, rating and shop inspection of the bridge structures on the state highway system.

During the year, 86 designs were completed for letting. Of this number, 64 were designed for major system routes and 22 for supplementary routes.

The total length of all new structures contracted during the year amounted to 21,744 feet at a cost of \$42,129,453. Of these amounts, 2,398 feet were contracted at a cost of \$3,287,763 for the supplementary system.

Major structures contracted during the year, and included in the above statistics, include a contract for construction of piers for a new Route 54 and 63 bridge over the Missouri River at Jefferson City at a contract cost of \$4,222,565.25.

In addition to the design for new structures, 96 designs were prepared for repairing, widening, or extending for 25,202 feet of existing bridges at a cost of \$19,800,380.

Steel fabrication inspectors made 359 trips to 28 fabrication shops to inspect steel for the various bridges and 230 sets of shop drawings were processed.

The division was involved in liaison with consulting engineering firms on three major bridge projects.

A quality circle was active and was instrumental in providing solutions to at least ten problems during the year.

In addition to structure design, the division has been rating county and/or municipally-owned bridges as part of the Federal Highway Administration Bridge Replacement and Rehabilitation Program.

Also, division personnel reviewed programming eligibility for 73 proposed bridge replacement projects; reviewed 68 preliminary layouts; and reviewed 77 sets of plans, specifications and estimates for bridge structures on the Federal Off-System Bridge Replacement and Rehabilitation and Federal Aid Urban Programs.

Construction

Construction work continues on Interstate Route 270 and Route 40 in the St. Louis area, Interstate Route 229 north of St. Joseph and Interstate Route 435 and Route 71 in the Kansas City area. In addition to this work, construction was started on a bridge over the Missouri River at Jefferson City. Work continues on the Route 40 bridge crossing the Missouri River between St. Louis and St. Charles Counties.

Interstate system contracts involved new construction, upgrading existing dual facilities to Interstate standards, and implementing the latest safety features. About 78 miles were completed or upgraded to Interstate standards this year. Approximately nine miles of Interstate road are now under construction.

The division resurfaced 1,298 miles of existing pavement with asphaltic concrete this year and numerous bridges were rehabilitated. The Off-System Bridge Repair Program, which the division administers, has increased greatly during the year.

Primary and supplementary system contracts included new construction, bridge replacements and widening and resurfacing projects. Where applicable, the latest safety features were included. The contracts included costs of construction work in rural and urban areas and projects financed either with federal-aid or with 100 percent state funds.

Costs of inspecting construction projects were kept at a low level by upgrading equipment and additional personnel training.

ACTIVE PROJECTS AS OF DECEMBER 31, 1987

System	Awarded in 1985	Awarded in 1986	Awarded in 1987	Total
FEDERAL-AID FUNDS				
Interstate	2	5	34	41
Primary	5	16	104	125
Supplemental	0	2	27	29
Off-System	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Subtotal	7	23	166	196
100 PERCENT STATE FUNDS				
Interstate	0	0	2	2
Primary	0	0	8	8
Supplemental	0	<u>0</u>	<u>6</u>	<u>6</u>
Subtotal	0	0	16	16
TOTAL PROJECTS	<u>7</u>	<u>23</u>	<u>182</u>	<u>212</u>

Equipment & Procurement

This division is responsible for procuring and maintaining a fleet of equipment that will efficiently and effectively permit the department to carry out its functions. At the close of the year, the division was maintaining 6,036 rental units consisting of passenger cars, trucks, carryalls, tractors, mowers, motorgraders, and various miscellaneous units.

Fuel used in the fleet in 1987 was up approximately 9.5% over 1986. The average price of gasoline increased 8.9% and diesel fuel dropped 1.7%.

It required 6,826,412 gallons of gasoline, 113,345 gallons of kerosene, and 2,373,612 gallons of diesel fuel to operate the fleet. In addition, 9,102 gallons of anti-freeze, 100,001 gallons of lubricating oil, 47,525 gallons of hydraulic oil, and 87,155 pounds of multi-purpose gear oil and lithium grease were used. Tires and tubes costing \$956,536.65, tire chains costing \$21,993.00, and shop equipment, parts, and supplies totaling \$7,232,581.92 were contracted for during the year.

The division is also charged with the responsibility of providing all tools, supplies, and materials that are required in the operation of the department. In an effort to give better service to other department divisions, annual contracts are being utilized on many items instead of periodic purchases. The quantities of the various materials purchased for use in highway maintenance are listed as follows.

Various Types of Asphalt	55,753,410 Gallons
Gravel/Stone/Chat	1,968,272 Cubic Yards
Paint	454,110 Gallons
Reflectorizing Spheres	2,664,600 Pounds
Sodium Chloride (Winter 1986-87)	122,756 Tons
Calcium Chloride (Winter 1986-87)	3,581 Tons
Agricultural Seed	61,500 Pounds
Treated Wood Sign Posts	33,228 Each
Steel Sign Posts	35,607 Each
Grader Blades	389,580 Pounds

The headquarters sign shop produced a total of 131,430 signs and markers of various shapes and sizes amounting to \$1,301,873.01 during the year.

The purchase of storage batteries, pneumatic tires, and tubes for direct shipment from the supplier to each district office was continued during 1987, again providing a savings in freight costs.

Five years ago, we revised our storage battery contract to upgrade quality. During this period, we have decreased the number of batteries purchased by approximately 40% and have decreased the annual expenditure for storage batteries by approximately \$70,000.

In an effort to save money, various supplies and equipment are produced at the headquarters garage when labor is available. We will also soon be implementing a freight and internal mail delivery. We anticipate an annual savings of \$100,000.

Chief Counsel's Office

The following is a summary of activity by the chief counsel's office during the year 1987:

(1) **CONDEMNATION CASES:**

(A) Thirty-one new petitions were filed from January 1, 1987, to December 31, 1987, involving 194 tracts of land.

(B) Disposition was effected in 78 cases and 123 exceptions were filed.

(C) There were 21 jury trials reported.

(D) There was collected the sum of \$1,201,383.33 on final judgments in which a return from the commissioners' award was due the Commission.

(2) **ADMINISTRATIVE HEARINGS:**

(A) **OUTDOOR ADVERTISING:** There were 26 hearings involving 49 signs conducted.

(B) **UTILITY RELOCATION:** Four hearings were held.

(C) **RELOCATION ASSISTANCE:** No hearings were held.

(3) **HIGHWAY BEAUTIFICATION CASES:**

(A) **OUTDOOR ADVERTISING:** Twelve cases were opened and five were closed.

(B) **JUNKYARD CASES:** Twelve cases were opened and 12 were closed.

(4) **TORT CASES:**

(A) **GENERAL LIABILITY:** Twenty-eight cases were filed against the Commission and 33 were closed.

(B) **FLEET VEHICLE LIABILITY:** Six cases were filed against the Commission and one was closed.

(C) **PROPERTY DAMAGE:** Three cases were filed by the Commission and 17 were closed.

(5) **WORKERS' COMPENSATION CASES:** There were 48 claims filed with the Missouri Division of Workers' Compensation and five claims were closed.

(6) **CONTRACTOR CASES:** Six cases were filed against the Commission and two cases closed.

(7) **MISCELLANEOUS CASES:** Sixteen cases were filed against the Commission and 20 were closed.

(8) **FEDERAL CASES:** Four cases were filed against the Commission and seven were closed.

(9) **MISCELLANEOUS:** There were numerous contracts prepared and reviewed, numerous legislative bills reviewed, and numerous legal opinions rendered.

Maintenance & Traffic

The division is responsible for maintenance and traffic operations on the 32,287 mile state highway system. In addition to the roadway the division is also responsible for maintaining 20 rest areas along the interstate system and 69 roadside parks on the primary and supplementary highways.

In a continuing effort to conserve energy the department has been building commuter parking lots along many of the high traffic volume highways. This program began in 1974. At the end of December, 1987 there were 84 operative parking areas with a total of 4,689 parking spaces.

One of the major expenditures of the division is for the maintenance of low type bituminous surfaced roads. In 1987, 3,272 miles of low type surface roadway was surfaced under the maintenance leveling course program. In addition, 1,039 miles were resurfaced by contract under the contract leveling course program and 150 miles of roadway were surfaced under the contract sealcoat program.

In 1986 the department initiated a program to install liquid calcium chloride dispensing units at maintenance facilities in the major urban areas. This liquid is applied to salt and other abrasives making it more efficient in removing snow and ice from the roadway surface. During 1987 this program continued with the addition of 30 additional units installed in maintenance facilities along the major freeway network.

Division personnel are responsible for routine inspection of all span type bridges on the state highway system. In addition to the routine inspection, the hanger pin assembly unit on 299 structures was ultrasonically tested to detect any possible failures in the pins.

Underwater inspections were made on five Missouri and Mississippi river bridges by private consultants.

Division repair crews completed structural repairs on 166 bridges and paint crews completed the painting on 165 bridges.

In 1987 new mowing guidelines were initiated which reduced mowing costs by about \$2,027,000 compared to the 1986 costs. The man hours spent on mowing were reduced by approximately 137,200 hours which allowed more time for other maintenance activity.

Basically the revised guidelines decrease the number of acres mowed, increase the mowing height, and delay the start of the final cleanup mowing. The benefits of the revised program include increased safety, improved turf, more cover for wildlife and providing conditions conducive to the establishment and spread of native grasses and wildflowers.

In conjunction with the University of Missouri-Columbia, the division provided a one day training program for 367 employees on the proper use of pesticides. The program was designed to increase the safety and effectiveness of pesticide usage on right-of-way.

In 1987 the Adopt-A-Highway program was introduced to increase public awareness of environmental problems along Missouri highways and to generate public involvement in improving that environment. The program provides a means whereby individual citizens or groups of citizens can maintain a section of right-of-way by mowing, litter pickup, or beautification and can be recognized by the department for their efforts.

There were 85,959 overdimension, overweight and overdimension/overweight special permits issued during 1987. Of this total 19,034, or 22%, were issued by the district offices. Included in the total were 1,482 permits issued to governmental agencies or subdivisions with fees.

Maintenance & Traffic

During the year, seven intersections of the state highway system were signalized by permit, 13 intersections were signalized by maintenance forces, and six by maintenance contract. Modernization of existing traffic signals continued throughout the state. Maintenance forces upgraded or installed new traffic control equipment at 35 existing signalized intersections. The program to interconnect various traffic signals for traffic progression was continued. New equipment which provides control and monitoring of traffic signals from our district offices was placed into service for evaluation. Contracts were also let to replace a number of older two-way mobile radios and to expand the mobile radio usage to various divisions and district positions. The program to replace all fixed station equipment and remote control consoles in all of the department's district offices was completed.

The ongoing program of systematic monitoring of peak period freeway traffic operations in the St. Louis and Kansas City area was continued. This surveillance program provides information on the location and severity of traffic congestion on this 170 mile urban freeway system.

Additional surveillance and limited analysis were made at specific problem locations. These included I-70 in St. Charles St. Louis counties from Route 94 to I-270. Other spot locations were the subject of more limited studies.

A hand-held computer was purchased for evaluation. This computer can monitor traffic flow on a freeway and will produce a printout showing traffic speed. The computer can also be used for monitoring the progression of signalized roadway systems.

A total of 71,123 accidents which occurred on the state highway system were coded and placed in the accident data record system. The reports

were provided by the State Highway Patrol and approximately 565 city and county enforcement agencies.

The division continued its 120/Medium Improvement Program in 1987. Nineteen locations where a higher than normal number of accidents had been occurring were investigated. At 15 of these locations corrective measures were implemented.

One hundred locations which had 20 or more accidents over a three year period were investigated and countermeasures were evaluated for possible funding under Section 209 of the 1973 Federal Highway Act. Twenty-three of these locations have been provided to the Division of Planning for inclusion on the Right-of-Way and Construction Program at a total estimated cost of \$2,472,578.

There were 361 billboards removed by property owners and 32 removed by state forces under the outdoor advertising laws and regulations. There were 792 new permits issued for billboards and 3,194 permits renewed under these regulations. Also, 229 licenses were issued for junkyards and 11,930 driveway and excavation permits were issued.

Activities funded from 402 Program funds under the 3+ Standards of the Missouri Highway and Safety Program and coordinated by the Missouri Highway and Transportation Department are as follows:

TRAFFIC ENGINEERING ASSISTANCE PROGRAM:

This aids political subdivisions which have traffic engineering problems where comprehensive review is required and where the subdivision does not have the personnel available to carry out the review. Services are performed by two consultants retained by the Commission for

Maintenance & Traffic

this purpose. Thirteen studies were completed in political subdivisions during the year. The average cost was \$2,488 per study. Seventeen additional projects have been approved and are in progress.

BRIDGE ENGINEERING ASSISTANCE

PROGRAM: This program establishes aid to political subdivisions in obtaining information on the structural adequacy of bridges under their jurisdiction. These services are performed by two consultants retained by the Commission on a yearly contract. The service includes determination of structural adequacy, establishment of posted weight limits, and development of priorities for the repair or replacement of bridges. Structural adequacy reports and inventories were conducted on 193 bridges during the year at an average cost of \$537 per bridge.

ENGINEERING TRAINING: Two different activities were conducted under the engineering training portion of our annual program. The 38th Annual Traffic Conference was held on April 27-29, 1987 at the University of Missouri campus in Columbia. Participants from various counties, the cities, and state and federal government attended this two day conference which dealt with solutions to traffic problems.

A traffic and transportation engineering seminar was presented by the Traffic Institute of Northwestern University and was held on the campus of Central Missouri State University from August 3-7 and 17-21, 1987. The seminar dealt with the fundamentals of traffic engineering and was attended by a total of 33 individuals. Program participants included Missouri Highway and Transportation Department employees from districts throughout the state as well as representatives from a number of cities and counties.

Phases II and III of the traffic records system upgrade were completed during the year. The

consulting firm of Ernst and Whinney was retained to provide assistance which included the necessary layout, programming, and training of Highway Department employees. Equipment was purchased and placed in each district office which allows district personnel to access the accident data base, thus creating an efficient means of obtaining and analyzing accident data.

The sign reclamation plant provided 286,040 square feet of metal sign blanks and 203 square feet of wood sign blanks. This amounts to 79% of the sign blanks used in 1987. In addition to providing blanks, other component parts of sign hardware, such as Z-bars, button copy, button reflectors, locking tabs and backing strips were also salvaged by the reclamation plant. Total savings to the department by the reclamation plant during 1987 amounted to approximately \$300,000. Since the plant went into operation in 1977 it has saved the department approximately \$2,600,000.

During 1987 the department placed a total of 65,600 miles of centerline, lane line, and edgeline stripes. This total included 33,600 miles of centerline and lane line stripes, and 32,000 miles of edgeline stripes. In conjunction with this striping, approximately 18,600 miles of no-passing zone stripes were also placed. To complete this work the department utilized 15 over-the-road strippers. Each unit included a full complement of nurse truck, attenuator trucks, and a lead truck.

During the year, 131,430 signs were produced, amounting to approximately 437,000 square feet of signs for installation on the roadway system. To meet expanding signing needs, the department started construction of a modernized production facility.

Materials & Research

The quality of materials intended for use in the construction and maintenance of the state highway system is the primary responsibility of the Materials and Research Division.

Personnel assigned to each of the ten districts coordinate field inspections for the sampling, testing, and approval of various materials. Laboratory testing and evaluation of materials used in highways and bridges is done at the headquarters laboratory in Jefferson City. Some of the tasks performed by the division include preparation of material specifications, exploratory subsurface soundings, pavement type selection, soil and condition surveys, quality control of aggregates, design and control of Portland cement and asphaltic concrete mixtures, special investigations, and research.

The central laboratory in Jefferson City is an approved facility which is inspected regularly by national inspection agencies such as the Cement and Concrete Reference Laboratory (CCRL) and the AASHTO Materials Reference Laboratory. The CCRL inspected the laboratory in November of 1987 and gave it an excellent rating. Many of the materials that are routinely tested in the field are also tested in the laboratory. This is done in order to insure uniformity of testing procedures on a statewide basis. The laboratory also tests all materials requiring specialized procedures. Efforts to automate certain types of laboratory tests through digital data acquisition and reduction were initiated during the year. It is anticipated that as experience is obtained in these areas significant savings can be realized.

In 1987, a total of 14,208 samples were tested, including those of an experimental or investigative nature. Quantities of those materials most commonly used which were tested and approved in 1987 are shown in the adjoining table.

During the year the division was actively engaged in several major research projects, ranging from methods to minimize rusting of reinforcing steel in bridge decks to various additives claimed to impart improved properties to Portland cement concrete. The division is in the process of instituting the use of new automatic freezing and thawing equipment. Greatly reduced testing time for long-term evaluation of concrete and aggregate durability is anticipated.

The division continues to support the Strategic Highway Research Program (SHRP) sponsored by the American Association of State Highway and Transportation Officials and performs as the state coordinator. Two division employees have been accepted and are serving on national committees to assist in the implementation of the program.

During 1987, the division embarked on an increased training program and personnel attended classes on correspondence preparation, FHWA sampling requirements, soil mechanics and overall materials inspection procedures. Recently acquired video equipment was found to be of great assistance in this type of in-house training.

The division has the responsibility of obtaining and interpreting the subsurface information required to effectively design highways and bridges. Data is obtained by drilling equipment and crews based in the division headquarters in Jefferson City. Crews and equipment are dispatched as required to all parts of the state. Personnel are also available to conduct special investigations on various geotechnical matters including foundation stability and settlement of embankments; slide corrections; subgrade and base stabilization; environmental studies; bridge and wall foundations; sinks and mine subsidence; and fly ash utilization. Specialized investigative techniques used include electrical resistivity, down-hole

Materials & Research

photography and sonar, and field permeability testing.

1987 COMMONLY USED MATERIALS INSPECTED, TESTED AND APPROVED

Aggregates	8,124,844 Tons
Cement	683,448 Tons
Reinforcing Steel	17,756 Tons
Culvert Pipe	
Corrugated Metal	128,145 Linear Feet
Reinforced Concrete	107,598 Linear Feet
Vitrified Clay	1,351 Linear Feet
Joints - Bituminous, Fiber	121,191 Linear Feet
Joints - Rubber	14,486 Square Feet
Joints - Metal	204,515 Linear Feet
Guard Rail	152,475 Linear Feet
Posts, Metal	77,468 Posts
Precast Units	
Median Barriers	8,682 Units
Concrete Bridge Beams	1,036 Units
Concrete Inlets	716 Units
Concrete Manholes	172 Units
Lumber and Square Posts	705,682 Board Feet
Piling and Round Posts	3,335 Linear Feet
Bituminous Material	
Cutback	14,967,200 Gallons
Penetration	7,574,996 Gallons
Emulsified	41,800,629 Gallons
Asphalt Cement	21,621,902 Gallons
Paint	704,868 Gallons

Personnel

The Personnel Division provides staff assistance to the department regarding personnel management matters such as employment, college recruiting, employee training and development, wage and salary administration, personnel policy administration, affirmative action administration, employee relations, and maintenance of personnel management records and statistics.

The division assists in the development and implementation of administrative programs to ensure that competent job applicants are attracted to employment with the Department, employees are properly trained in their occupation, and that working conditions are conducive to both high productivity and fairness toward employees.

The department is an equal opportunity employer and considers affirmative action a high priority. The Personnel Division, along with the districts, has concentrated efforts to attract qualified minority and female applicants. The division monitors Equal Employment Opportunity (EEO) progress and keeps the headquarters office and districts informed.

The orientation and training of new employees is primarily conducted through the department's supervisors. Each new employee is provided with several publications to assist in familiarization with the department's function, working rules and regulations, and employee benefits.

Employees, in obtaining the fundamental knowledge of their job, may become eligible for attendance at training conferences and seminars related to their specific work assignments. Most technical skills training is provided by operational divisions, utilizing staff with the necessary expertise. The Personnel Division supplements this employee training by periodically conducting supervisory training programs tailored specifically to the policies and needs of the department.

The department continues to develop its human resources, minimize costly employee turnover, and maintain a work environment conducive to high employee morale and motivation. All personnel transactions are reviewed to attain equitable and uniform salary administration and policy application. Job evaluations are conducted to maintain accurate specifications and internal salary equity.

To maintain an adequate salary structure and employee-benefits program within budgetary limitations, periodic compensation surveys are conducted.

A review of employee records for prior service with the state which may be creditable toward retirement continued during this year.

The division maintains daily liaison with headquarters and district administrative personnel to assist in the clarification of personnel administration matters.

The department added a District Personnel Officer in the Kansas City and St. Louis district offices to assist in the administration of personnel management activities.

The division processed 78 claims for unemployment compensation during 1987 and obtained 37 denials of unwarranted compensation claims, thereby avoiding considerable expense to the department. Twenty seven of the processed claims were not protested by the division because the claimants were temporary employees who became unemployed through no fault of their own and were, therefore, entitled to unemployment compensation.

Centralized personnel records are retained with considerable personnel data being used for statistical analysis of employee profiles, employee

Personnel

trends, manpower planning, etc. Personnel records have been improved through computer applications, permitting a more rapid recovery of the personnel data required for government and operating reports.

The Department had 6,035 salaried employees on December 31, 1987, in addition to 207 summer employees during the Summer of 1987. Temporary and emergency employees are also employed as needed for short durations, such as for snow removal.

The personnel division held several pre-retirement seminars for headquarters employees and their spouses.

During 1987, 176 employees were processed for retirement. Thirty six were between ages 55-60 with 30 or more years of service; five were between ages 55-60 with 15 or more years of service; ninety were between ages 60-65 with 15 or more years of service; nineteen were between ages 65-70 with four or more years of service; and twenty had become incapacitated and qualified for disability benefits. Six vested members also elected to begin annuity benefits. The Highway Employees' and Highway Patrol Retirement System is currently paying benefits to 2,368 department retirees and survivors.

The department recognizes that skilled work results, high productivity and sound decision-making are the products of retaining a trained, experienced work force. As of December 31, 1987, the average employee had given almost 16 years of service to the Highway and Transportation Department.

As part of its overall affirmative action program, the department is committed to encourage, develop, and implement programs assuring that disadvantaged and women-owned business

enterprises are afforded every opportunity to participate in state and federally-assisted programs as contractors, consultants, and suppliers.

The department has reduced selected contract sizes to provide more entry opportunities for smaller, less-experienced disadvantaged and women-owned firms. The department has also permitted joint ventures by disadvantaged and women-owned firms in order to provide more entry opportunities.

An updated list of Missouri and surrounding-area disadvantaged and women-owned businesses has been distributed. It is categorized by area of experience, location and specific product or services, and is sent to all contractors qualified to bid on work and to political subdivisions having initiated Federal Aid Urban projects. The contractors and political subdivisions are encouraged to utilize the disadvantaged and women-owned firms when possible.

Bidders on construction projects in Missouri are required to certify whether they intend to subcontract a portion of the work. If so, the bidders are obligated to take affirmative action in attempting to utilize disadvantaged and women-owned firms on the intended subcontracted portions.

Through the department's affirmative action efforts, \$28,668,859 in state and federally-assisted contracts and subcontracts were awarded to disadvantaged and women-owned firms during 1987.

Planning

Planning for the state's future highway system was an important part of the Planning Division's efforts in 1987. This involved collecting and maintaining financial and roadway information, determining both existing and future highway needs, and developing planned improvements and financial programs to meet those needs.

The division was engaged in preparing Proposition A, the additional revenue package, which was approved by voters April 7, 1987. Proposition A contains work to be accomplished in 15 years.

The 1987 Supplementary Service Rating was prepared. Data used in the annual update of the National Highway Performance Monitoring System was collected, and a report summarizing the information was prepared. Various innovative financing techniques were studied.

The division published the Highway Right-of-Way and Construction Program showing the proposed improvements for 1988. The new program was printed on a revised format showing five programming-year divisions instead of three. A six-month progress report on Proposition A was also prepared.

Approximately 4,000 vehicle counts and 150 manual classification counts were made on the 32,000 miles of state highways in 1987. Speed surveys were conducted at 34 statistically selected locations throughout the state to determine average operating speeds. Vehicle miles of travel on the state highway system increased nearly 4.5 percent from 1986, establishing a new travel record for Missourians.

The annual vehicle travel report was prepared for 1986. The report includes information on travel for all roads and streets in Missouri.

Truck classification and vehicle weight information was gathered with new weigh-in-motion equipment at 18 locations in 1987. New automated pavement condition survey equipment was purchased in 1987 to aid in the development of pavement management and in preparation of the Highway Right-of-Way and Construction Program.

Selected travel characteristics were gathered at five locations within the state by conducting roadside interviews with motorists. The information from these studies was used to determine needs and plan improvements for the locations.

The comprehensive planning process continued in the six urbanized areas. This process requires the cooperation of local jurisdictions and planning organizations, as well as the department. The process develops multimodal long-range plans and compiles areawide improvement programs in the urbanized areas of Kansas City, St. Louis, Springfield, St. Joseph, Columbia and Joplin.

Cities of more than 5,000 population received assistance in updating their functional classification and federal-aid systems. Information was compiled to update the National Highway Performance Monitoring System in urban areas.

The research and development section is responsible for administration of research contracts with agencies outside the department. A near collapse of a structure on I-55 triggered a research study to determine the cause for failure in bridge pins. Safety concerns inspired a study for crash test results using plastic drum markers. Federal requirements dictated a study to provide crash test results for our standard three-beam bridge rail, and a search for methods to reduce mowing costs resulted in a study to introduce native wildflowers and grasses along roadsides.

Right-of-Way

Thirty-two changes in route status were requested in 1987, of which twenty-six were completed.

Twenty-six county highway maps were either revised or redrawn this past year. There were also 287 city maps and nine urban-vicinity maps updated. Work continued on the official highway map and over two million copies of the map were printed for 1987 and 1988 distribution.

The division continued to compile financial and statistical data related to the highway system. This information is used in monitoring the department's cash flow, updating and maintaining route history records, and developing financial programs relating the funding needs.

STATUS OF MISSOURI HIGHWAY SYSTEM

(As of December 31, 1987)

SYSTEM	ROAD MILES
Interstate	1,159.2
Primary	6,289.3
Supplementary	24,298.6
TOTAL	32,287.1
TYPE	ROAD MILES
Granular	0.5
Low-Type Bituminous	24,751.7
High-Type Bituminous	4,907.7
Concrete	2,627.2
TOTAL	32,287.1

During 1987 the cost of right-of-way acquired for highway construction totaled \$10,986,342.

The division acquired 644 parcels -- 466 by negotiated settlement and 178 by condemnation, or 72 percent by negotiation and 28 percent by condemnation.

Payments totaling \$677,156.75 were made in 1987 under the Relocation Assistance and Payment Program to assist displaced families, business, and farm operations in relocating. During the year, 213 relocation claims were processed and paid.

During the year, the division obtained appraisals for 486 parcels. Two separate appraisals were prepared for 3 percent of the parcels involved, making a total of 501 appraisals produced. An average of 41 parcels was appraised each month, which required an average production of 42 separate appraisals per month. Also 112 damage statements were prepared on parcels with an estimated value of \$500 or less.

Receipts from the sale of improvements located on right-of-way acquired for highway construction and from the sale of excess property totaled \$206,519.01

Rental of airspace, excess property, and property acquired for future construction resulted in an income of \$401,599.92 and \$6.00 was derived from miscellaneous sources.

Public Affairs

The Public Affairs Division is responsible for keeping employees and the general public informed about the many activities of the department.

Public interest in highway and transportation matters continued at a high level during the year and the Public Affairs Division showed a corresponding increase in disseminating information.

News releases, magazines, brochures, leaflets, fact sheets, slide films, exhibits and displays, radio and television programs, and public speaking engagements were all utilized. Public Affairs personnel were in constant touch with the state's news media, to which extensive information was distributed both routinely and on special request.

During the year the division prepared and distributed more than 100 news releases. In addition, numerous special articles, feature stories and photographs were supplied to magazines, newspapers and other publications. The statewide newspaper clipping service continued, keeping officials informed of department coverage and comment.

During the first months of the year the division was heavily involved in the successful effort to secure passage of Proposition A, the road and bridge improvement program approved by Missouri voters in April.

The division was called on frequently to assist in ground breaking and formal opening ceremonies for major road and bridge projects.

A variety of speeches and brochures, as well as the department's annual and biennial reports, were developed by division personnel.

The "Missouri Highway & Transportation News" was published and distributed monthly. This is the

department's employee newspaper with a circulation of 9,500.

Approximately 1000 mail and telephone requests per month were answered by division personnel regarding maps, road information, routings, educational material, and films.

The division supervised the distribution of more than one million highway maps, many of which were distributed at the Missouri State Fair. Public Affairs personnel staffed the annual fair exhibit in the Highway Gardens, a roadside park on the fairgrounds. More than 300,000 people came through the park during the fair's 11-day run.

The department's technical and video library also continued to be housed in the division.

Data Processing

The Data Processing Section provides computer programming for non-engineering applications as well as mainframe computing resources and data entry services for the department. Support of personal computing and office automation is rapidly becoming an important part of the section's activities.

The realignment of district boundaries contributed significantly to the activities of the section in 1987. Many programs were changed as a result of different district to county relationships. The organizational identity of many employees changed. Inventories of materials and locations of vehicles were revised to the new boundaries.

Preparations for the revised maintenance crew report involved the creation of several programs. Terminal programs were created to provide the most timely editing of incoming crew reports. Other programs were created to produce computer records from the new crew reports that would be compatible with the other employee time sheets and equipment usage.

Terminal use in the districts became a reality with the availability of inquiry into files for accident data, vendor payment data, payroll, personnel, vehicle fleet, insurance, retirement and several inventories. The availability of these inquiries saves considerable search time and provides more up to date information.

The payroll system was revised to provide more flexibility in the processing of miscellaneous deductions and to simplify the reporting of income tax and dependent data. This activity causes changes in many computer programs. Related changes were made in the programs that forward payroll and personnel data to the Office of Administration payroll system.

Other areas that were active include revision of the calculation of equipment depreciation rates

and depreciation, the programming of long term disability, and military payback systems.

Personal computer support in the form of training and user assistance was increased. Introductory computer classes were held throughout the department. Classes in data base, spread sheet and word processing were also presented.

The department central computer is operated from 7 a.m. to midnight, Monday through Friday. Terminal users have access to the computer from 7:30 a.m. to 9:00 p.m. There is some week-end operation for testing of operating systems or by pre-arrangement to support overtime activities of the department. Approximately 7,000 jobs per month are processed.

Data entry is accomplished on two key to disk units with a total of 15 operator stations. Employee time sheets, maintenance crew reports, equipment rental reports, commercial vendor payments, salary payroll, and paper charges account for the greatest part of the work done by data entry.

Surveys & Plans

The Surveys and Plans Division is responsible for preparation of roadway improvement studies, plan preparation and the letting of contracts.

Meetings and formal hearings are held as needed or required to explain the need and purpose of highway improvements and to obtain public input. Coordination is also required with local, state and federal agencies. During the past year, tentative location approval was obtained on 37 highway improvements with 16 formal location and design public hearings and several public meetings held.

Photogrammetric surveys utilizing aerial photography are initiated during early project development. Field surveys supplement this work and provide the basic information for plan development.

Assessment of environmental impacts for each project are considered. This includes air quality evaluation, noise studies, and cultural, social and economic considerations. Cultural resource survey reports were completed on 70 projects and over 50 were reviewed and cleared in-house.

Prior to letting highway improvements, right-of-way is acquired, arrangements are made for necessary utility adjustments, and permits and licenses as applicable are obtained from state and federal agencies. Approval of detail plans for right-of-way acquisition was obtained on 66 projects in 1987.

The Disadvantaged Business Enterprise program provides opportunity for businesses owned and controlled by socially and economically disadvantaged individuals or women to participate in the performance of contracts or subcontracts financed in whole or in part with federal funds. With the passage of the Surface Transportation and Uniform Relocation Assistance Act of 1987, all women-owned businesses were included in the

definition of a Disadvantaged Business Enterprise. The amount of participation by these firms during the year was \$31,023,204.

Interstate discretionary funds are an extraordinary allotment of Interstate funds that are provided as a bonus to states who have obligated their normal Interstate apportionment and are in a position to utilize these funds within a 90-day period after obligation. Interstate discretionary funds permit the department to accelerate completion of the Interstate system of highways. Bridge discretionary funds are made available for larger bridges. Bridge discretionary funds facilitate replacement of major structures without using normal federal-aid apportionments. Projects with Interstate discretionary and bridge discretionary funds totaling \$10,906,875 were realized in 1987.

The division also administers several federal-aid programs that provide funding for cities, counties, and rail-highway crossing safety improvements.

One of these is the Federal Aid Urban (FAU) program which provides federal funding for street and highway construction in cities and urban areas over 5,000 population. During 1987, approximately \$9,611,785 was obligated in cities throughout the state for this program. The FAU funds are generally used to finance 75% of the cost of eligible projects, with local jurisdictions providing 25% in matching funds. During the year 30 projects were approved for construction under this program.

The FAU Bridge Replacement program financed ten bridge replacement projects in urban areas in 1987 at a cost of approximately \$4,925,653. Bridge replacement funds are used to finance 80% of the cost with local agencies responsible for the remaining 20%.

The Off-System Bridge Rehabilitation and Replacement program provides federal funds for

Surveys & Plans

bridge repair and replacement on county roads not on a federal-aid system. During 1987, approximately \$19,412,968 was obligated for projects qualifying for this program, with counties providing 20% matching funds. During 1987, 47 projects were approved for preliminary engineering charges, 61 were approved for construction and 47 projects were placed under contract by the counties.

Safety improvements at railroad-highway crossings are available through the Rail-Highway Safety Program Section 203 Funds. During 1987, 41 crossings were improved by the installation or replacement of standard or cantilevered signals and/or gates. Three of these crossings were on the state highway system and the remaining ones were on city streets or county road crossings. The cost of the work was \$3,842,000, of which 93% was spent on off-system crossings.

The project to install 12-inch roundels is 99.5% complete with only 3 crossings remaining with

eight-inch roundels.

The program to improve the riding quality of railroad-highway crossings at 135 locations was completed in 1987. Nine high-type crossings were completed. A total of \$360,000 was expended on this program.

During the past year, 10 highway lettings were held. Projects totaling \$335,984,971.56 were placed under contract. An average of 4.9 bids was received per project. Passage of federal legislation and Proposition A provided additional funds for larger and regularly scheduled lettings beginning with the April, 1987 letting.

Prices decreased during 1987, with the Missouri average composite cost index being 169.4 compared to base year 1977. The 1987 cost index reflects a 9.4% decrease when compared with the 1986 cost index of 187.0.

The following table provides a resume of projects awarded for 1987:

1987 REPORT	AWARDS	MILES	PROJECTS
Interstate System	\$ 60,663,559.01	136.271	46
Primary System	199,893,033.53	257.780	101
Supplementary System	48,211,287.84	128.222	67
Maintenance Work	18,117,508.27	1,197.445	184
Off System (County Bridges)	173,706.77	0.178	1
Federal Aid Urban (on State System)	8,925,876.14	14.042	27
Totals	\$335,984,971.56	1,733.938	426

Transportation

Aviation

Aviation, as an industry, is a major contributor to the economy of the state. As a mode of transportation, it is essential to the movement of millions of Missouri residents each year. The Aviation Unit actively promotes these values through the development of the industry, the improvement of airports and the education of local governments and individuals.

Personnel of the Aviation Unit are available for information or technical advice to airport sponsors and any others who are interested in the establishment, improvement or promotion of aeronautical facilities.

Aviation provides financial assistance to cities, towns, counties, or airport authorities throughout the state through two grant programs. The Capital Improvement Grant program provides financial assistance to sponsors of publicly owned airports for planning, construction or expansion. Funds under this program are granted on a 50 percent state/50 percent local matching basis.

Under the airport maintenance program, funds may be granted to airport sponsors on a 75 percent state/25 percent local basis for maintenance on runways, taxiways, parking aprons and for emergency repairs or safety-related items. The financing of this program is derived from the unrefunded portion of the motor fuel tax that is applied to aviation gasoline.

A portion of the unrefunded fuel tax is used for the annual publishing and distribution of the Missouri Aeronautical Chart and Airport Directory. Aviation published 8,100 copies of the directory at a cost of \$13,961.

As a result of the Airline Deregulation Act of 1978, the Aviation Unit is active in monitoring the small community Essential Air Service program that is regulated by the Department of Transportation.

A requirement of the act is that all actions affecting the air service to smaller communities must be coordinated with state aviation agencies.

During 1987, there were 71 airports inspected, 187 obstruction evaluations performed, and 11 objections were filed.

Missouri has a total of 449 airport facilities. These include 366 airports, 78 heliports and five seaplane bases. Of these, 154 facilities are open to the public and 295 are restricted use. There are 5,857 registered general aviation aircraft and 12,341 active pilots in the state. Nine airports provide scheduled air transportation and enplaned about 15 million passengers in 1987.

During the year, 37 applications for financial assistance under the airport capital improvement and maintenance programs were received and processed. Aviation provided 19 capital improvement grants for a total of \$292,229 and seven maintenance grants totaling \$148,593. The \$292,229 in capital improvement grants generated approximately \$1,434,252 in combined local and federal money.

Third State Economic Development projects were in progress at 19 Missouri airports during 1987. A total of \$1,404,404.88 was expended for 15 of these projects.

The system development section update of the Missouri State Airport System plan was submitted to the Federal Aviation Administration (FAA) for review and approval. A computerized update of the entire plan is ongoing.

In a joint effort of the Aviation Unit, FAA, East-West Gateway Coordinating Council and Illinois Department of Transportation, the St. Louis Helicopter/Heliport System plan was completed

Aviation

and awaits final approval. Likewise, the St. Louis-Lambert Capacity Study which was done by the Aviation Unit, FAA, tenant airlines, and management of St. Louis-Lambert Airport, was completed this year and awaits approval.

The Aviation Unit is actively involved with the American Association of State Highway and Transportation Officials (AASHTO) Modal Technical Advisory Committee, the AASHTO Standing Committee on Aviation, the Spirit of St. Louis Noise Study, the Mid-America Regional Council Helicopter Study, the St. Louis Area Economic Impact Study and the Jefferson City Memorial Airport support group. The unit is also monitoring the Scott Air Force Base Joint Use Study.

Railroads

The purpose of the Railroad Unit is to provide, maintain and improve rail transportation within Missouri. Railroads administers programs involving rail planning, rail project implementation, and the Amtrak 403 (b) program.

In 1987, the rail planning activities program concerned itself with several different items including the following: The collection and tabulation of railroad data to be included in the next scheduled **Rail Plan Update**; the analysis of specific light density lines as possible candidates for rail projects; branch line abandonments; the monitoring and implementation of federal rail legislation; the Santa Fe/Southern Pacific merger and subsequent divestiture plans; the proposed Union Pacific/Missouri-Kansas-Texas Railroad merger; the Missouri High Speed Rail Corridor Study; the Chicago, Missouri & Western Railway Company's purchase of the Illinois Central Gulf Railroad line between St. Louis and Kansas City; the Southeast Kansas Railroad Company's acquisition and operation of the Missouri Pacific's rail line between Nassau Jct., Mo and Coffeyville, Ks (103.87 miles - 32.4 miles in Mo); the Golden Cat Railroad Corporation's acquisition and operation of the Missouri Pacific rail line between Delta and Newman Spur, Mo, 10.8 miles; and other general railroad matters.

The rail project implementation program involved six rail projects. They are:

1. Missouri-Kansas-Texas Railroad: Montrose to Appleton City (3.74 miles) -- A rail renewal project which was completed in March. A final audit was performed and no errors or irregularities were noted. The final project cost was \$470,919.13, with the federal share at \$290,000 (62 percent) and the railroad share at \$180,919.13 (38 percent).
2. Chillicothe to Kelly (37.6 miles) -- A track rehabilitation project which was completed,

Railroads

inspected, and accepted in December. The final project cost was \$823,951.43, with the federal share at \$324,480 (39 percent), the Missouri Rail Improvement Authority share at \$300,000 (37 percent), the Economic Development Administration share at \$173,250 (21 percent), and the Green Hills Rural Development, Inc. share at \$26,221.43 (3 percent).

3. Missouri-Kansas-Texas Railroad - LaDue to Montrose (8.3 miles) -- A rail renewal project which was completed, inspected, and accepted in October. A final audit was in progress. The final project cost was \$1,029,228.65, with the federal share at \$400,000 (39 percent) and the railroad share at \$629,228.65 (61 percent).
4. Columbia to Centralia (21.7 miles) -- An acquisition and track rehabilitation project. The City of Columbia acquired the rail line from the Norfolk Southern in October. Bid proposals involving the purchase of relay cross ties were requested and awarded. Bid proposals regarding the rehabilitation were requested and awarded. The estimated project costs were \$834,000, with the federal share at \$509,000 (61 percent) and the City of Columbia's share at \$325,000 (39 percent).
5. Scott City Port Access Project (1.6 miles) --A rail facility construction project which involves the construction of a rail access spur into the port site in Scott City. The consultant selection process was in progress. The estimated project costs were \$1,657,260, with the federal share at \$301,829 (18 percent) and the Southeast Missouri Regional Port Authority share at \$1,355,431 (82 percent).

6. Jackson to Delta (18.2 miles) -- A rehabilitation project approved by the Federal Railroad Administration in September. A track rehabilitation program was in progress. Federal funds available for the project are in the amount of \$105,413.

Missouri provides rail passenger service between St. Louis and Kansas City through participation in the Amtrak 403 (b) program. Both the "Ann Rutledge" and the "St. Louis/Kansas City Mules" are funded by a ratio of 65 percent state funding and 35 percent Amtrak funding. During 1987, these two trains carried 165,979 passengers.

In an effort to build public awareness, route-specific radio promotion was purchased during the spring and was further supplemented by advertisements for the Hermann Oktoberfest. We continue to work with the City of Hermann in its efforts to make trackside improvements that would benefit Amtrak passengers who visit the community.

In addition, a route brochure was developed to aid passengers in making transportation connections at their destination. A rail map commentary on points of interest and a timetable are also included in the brochure.

Other rail passenger activities included on-going discussions with Amtrak personnel regarding improved equipment maintenance, on-time performance, and continuing work on the high speed rail study grant awarded during 1986 by the Federal Railroad Administration. This study will explore ways to improve rail passenger service between St. Louis and Kansas City.

Transit

The Transit Section assists in the planning, development and operations of public transit systems and specialized paratransit systems in the state. This function is carried out through administration of state and federal programs relating to general public transportation and specific programs for the elderly and handicapped.

The Missouri Elderly and Handicapped Transportation Assistance Program provides state financial assistance for over 140 nonprofit organizations offering transportation services to the elderly and handicapped at below cost rates. For fiscal year 1987, program appropriations were increased by \$395,000, an increase of 38%. In calendar year 1987, \$687,000 in state general funds were matched with approximately \$2,500,000 in federal funds to subsidize elderly transportation services.

In addition, \$563,000 in state general funds were matched by \$563,000 in county, city or other local funds to provide essential services for other transportation disadvantaged, especially employees of sheltered workshops. Total transportation funding generated by this program was approximately \$3,600,000. More than 2,600,000 special transit trips were produced through this program.

Twenty-nine small urban and rural general public transit systems received financial and technical support from the department. Federal financial assistance is made available under Section 18 of the Urban Mass Transportation Act and allocated to the various systems by the department.

The small urban and rural systems had a combined operating budget of \$6,750,000 of which \$1,825,000 was provided by the department. An additional \$450,000 in federal funds were made available to purchase new equipment.

The systems operated a total of 260 vehicles, logged 6,500,000 miles and provided over 2,300,000 trips.

Section 9 of the Urban Mass Transportation Act provides federal formula capital and operating assistance to transit systems in urbanized areas (more than 50,000 in population). The department administers this program for Columbia, Springfield, St. Joseph and Joplin. In 1987, the department approved payment of \$2,665,289 in federal aid to the transit systems in Columbia, Springfield and St. Joseph.

Capital assistance to nonprofit organizations giving transportation service to the elderly and handicapped is provided by Section 16 (b) (2) of the Urban Mass Transportation Act. In 1987, the program provided \$820,000 in federal assistance. This was matched with \$205,000 in local funds for the purchase of 45 vehicles, wheelchair lifts, ramps and similar equipment for 25 elderly and handicapped organizations.

The transit unit provided staff support for the statutory Coordinating Council on Special Transportation. This Council investigated problems in the delivery of special transportation services in Missouri and recommended solutions to the governor and General Assembly.

Waterways

Waterways provides technical assistance to Missouri port authorities in promoting private capital investment, in increasing the volume of commerce, and in the establishment of a free trade zone within their port districts. Every city or county situated upon a navigable waterway may form a port authority. Thirteen port authorities have been formed along the Missouri and Mississippi Rivers. The St. Joseph Regional and Jackson County Port Authorities were formed during the year. The department is frequently contracted by interested communities concerning the port authority program.

During 1987, six capital improvement projects were completed in the Kansas City, St. Louis and St. Louis County Port Authorities. Their value totalled \$3.25 million. Work continued statewide on five port capital improvement projects that were funded during 1985.

In addition to providing technical assistance, funding was also provided to assist port authorities in the administration of their port development programs. During the year, \$327,000 in grants was expended by 10 port authorities and the Bi-State Development Agency (the coordinating agency for the Port of Metropolitan St. Louis). These funds are used by the recipients for managerial, engineering, legal, research, promotional, planning, and other nonconstruction related expenses.

PORT DEVELOPMENT ADMINISTRATIVE GRANTS

Kansas City	\$33,000
Howard/Cooper County Regional	32,300
St. Louis County	25,000
St. Louis City	15,000
Bi-State Development Agency	13,000
Jefferson County	17,000
New Bourbon	4,000
Southeast Missouri Regional	58,700
Mississippi County	29,000
New Madrid County	41,000
Pemiscot County	59,000
Total	\$327,000

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